

FIG. 1

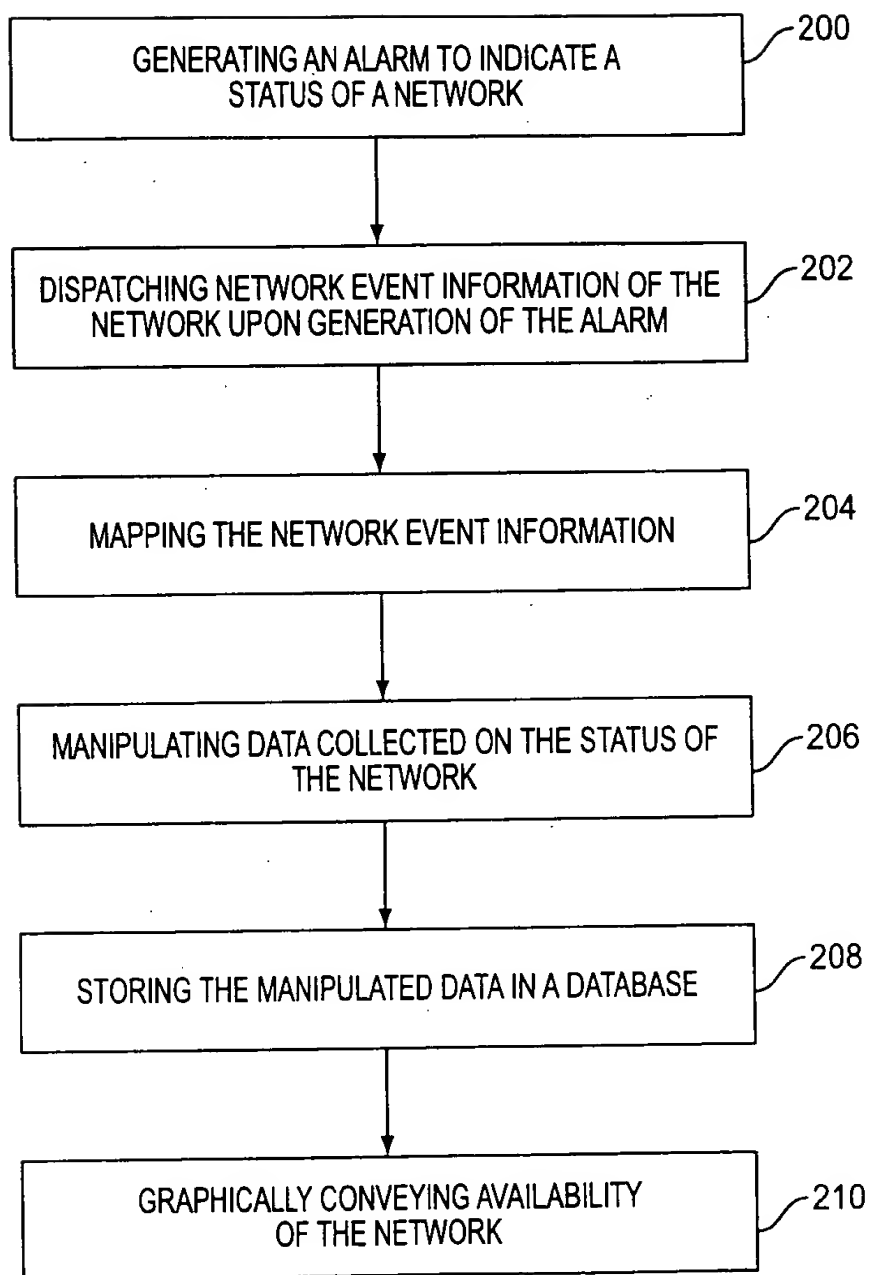


FIG. 2

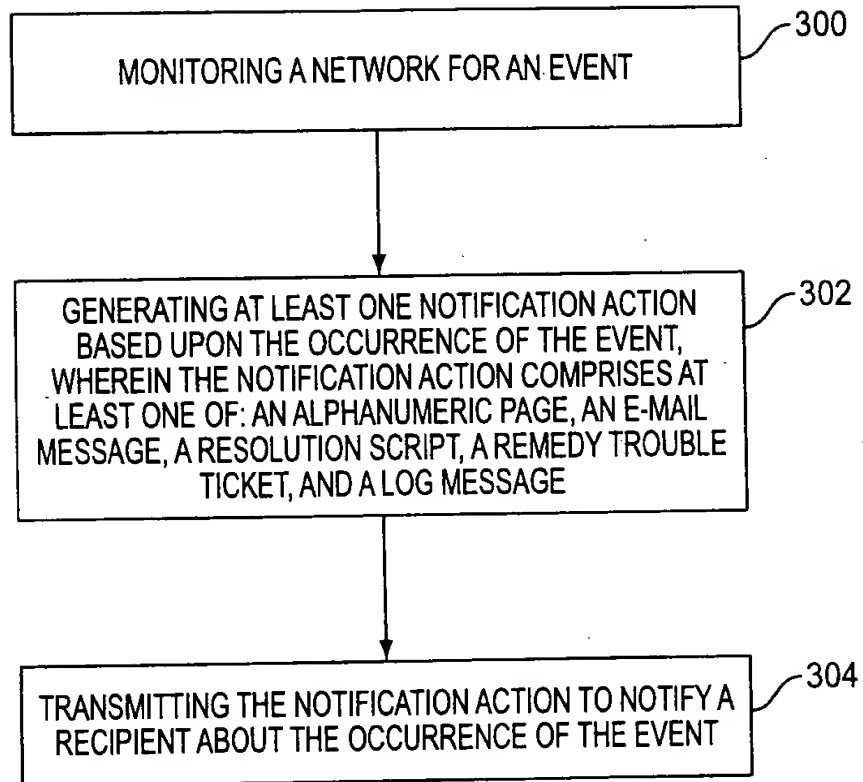


FIG. 3

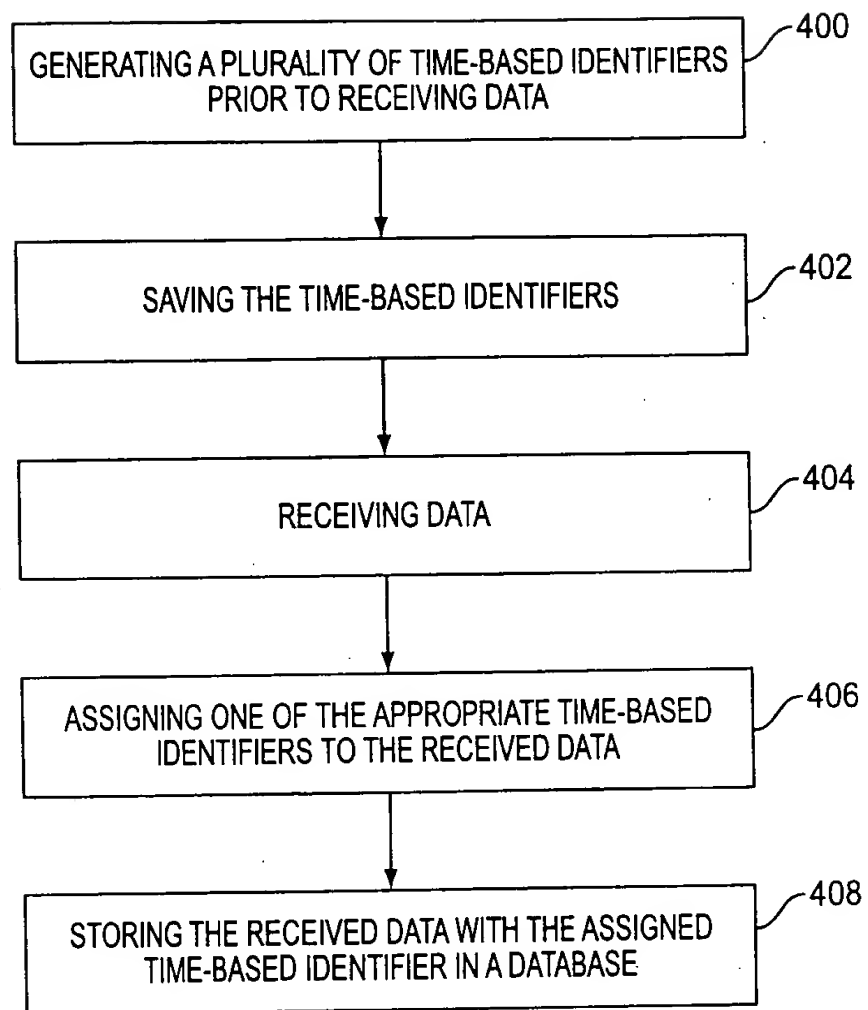


FIG. 4

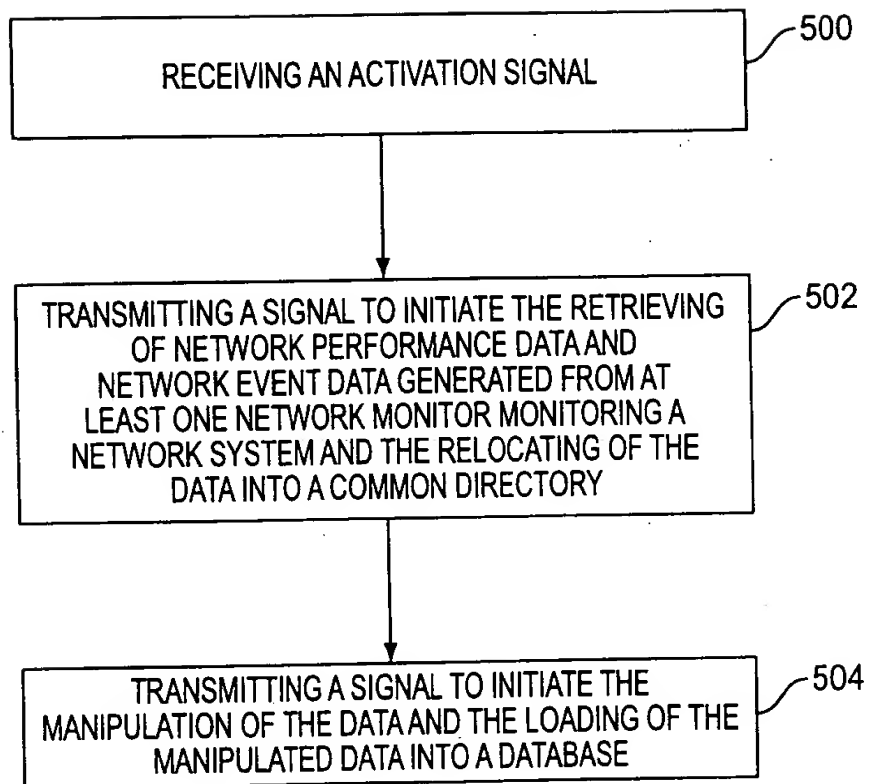
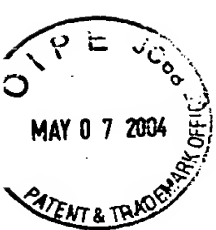


FIG. 5

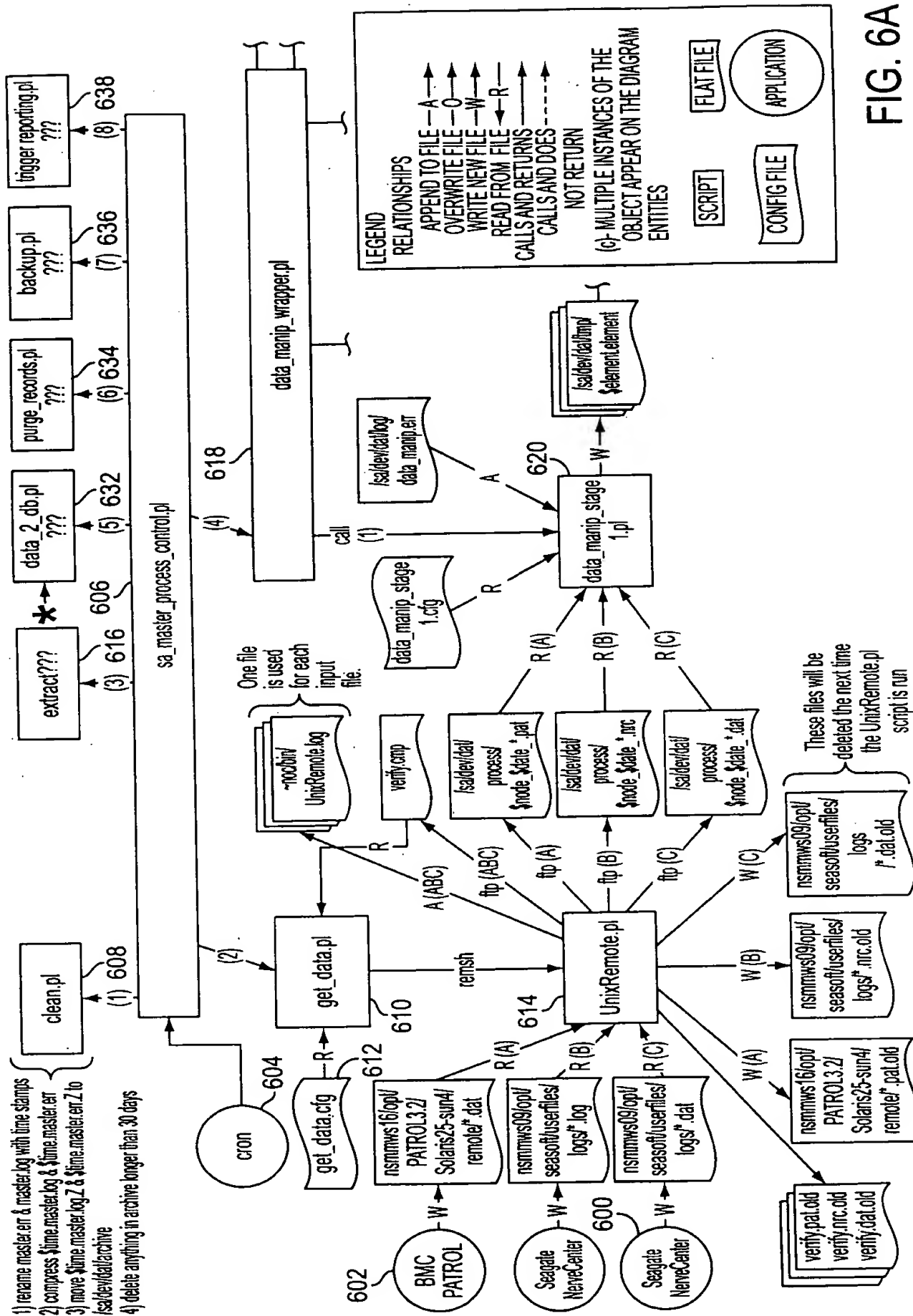


FIG. 6A

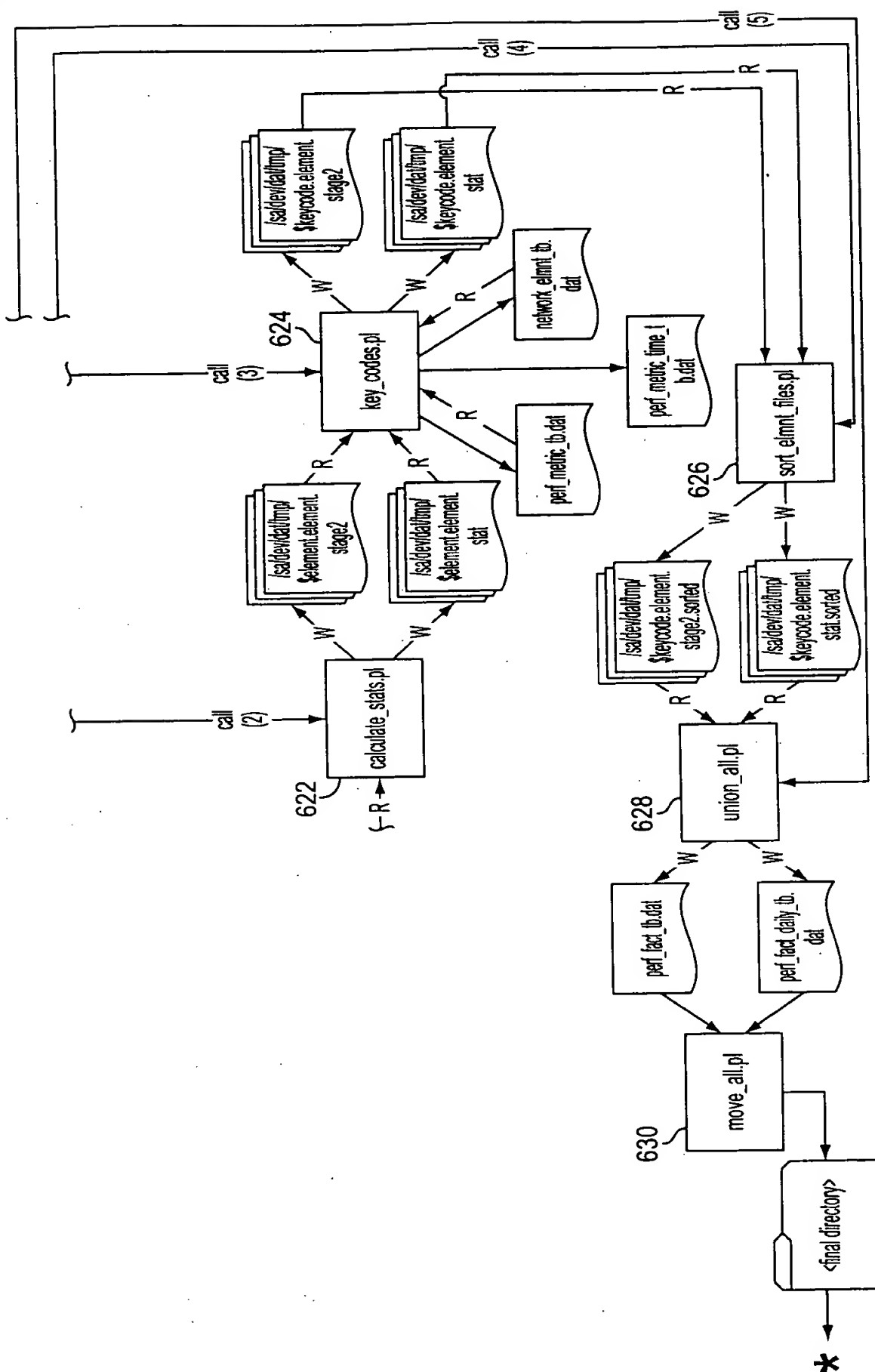


FIG. 6B

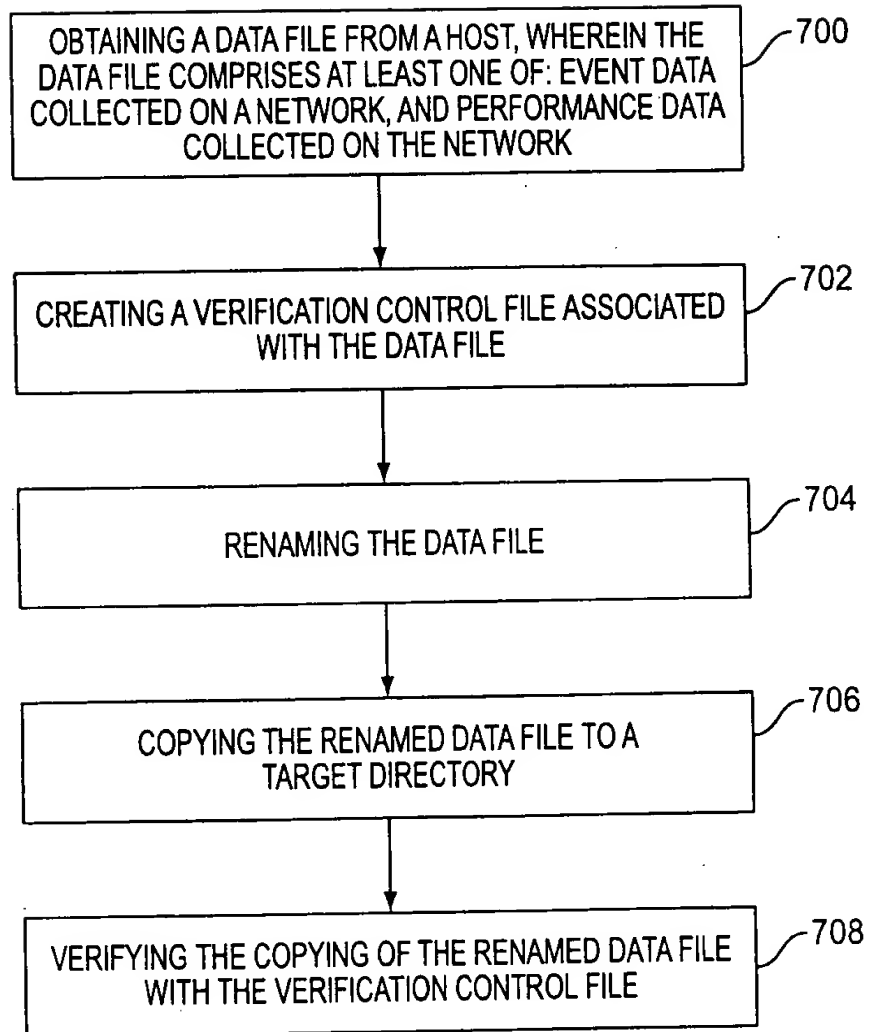
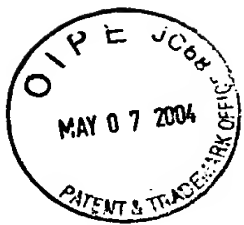


FIG. 7



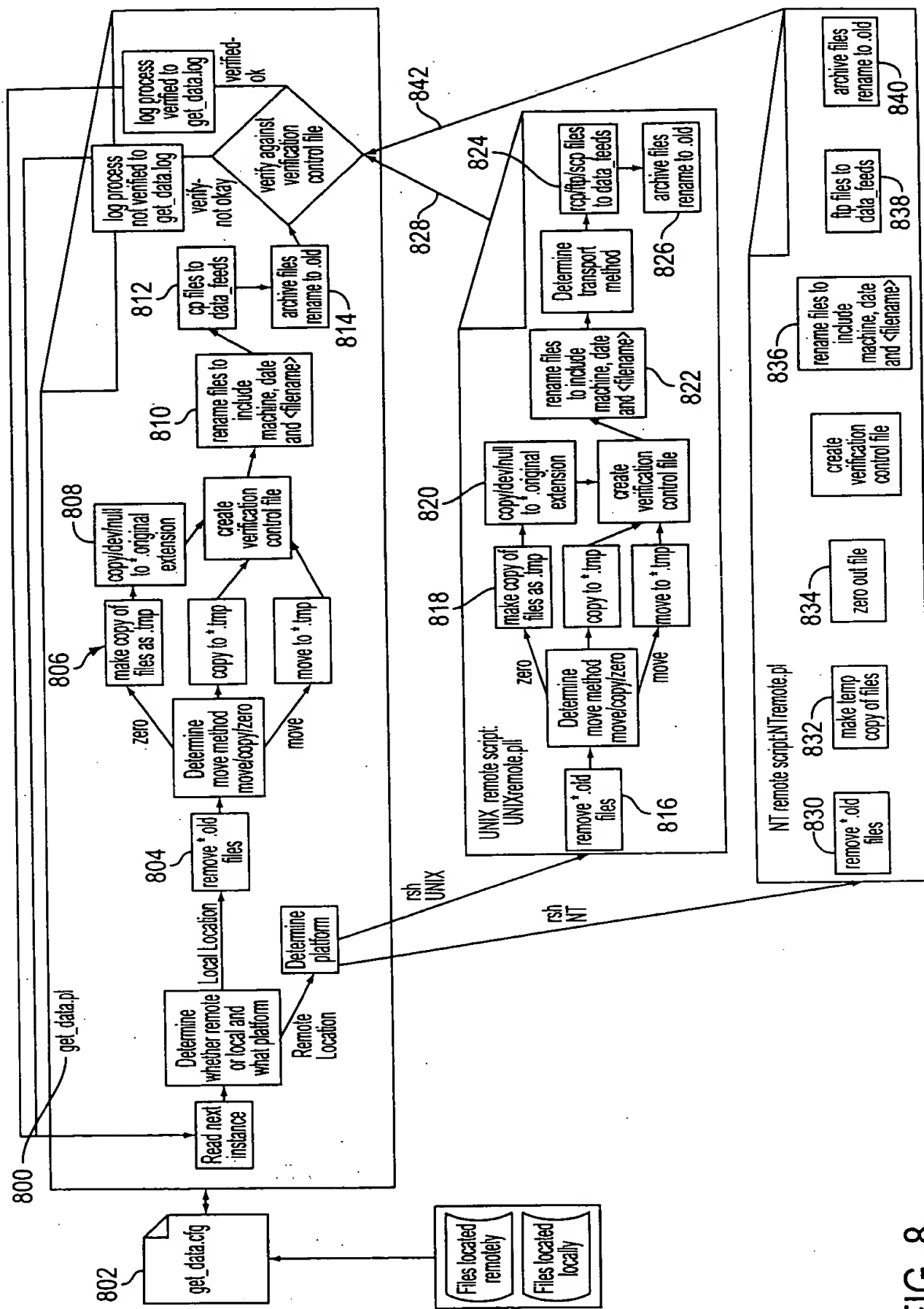


FIG. 8

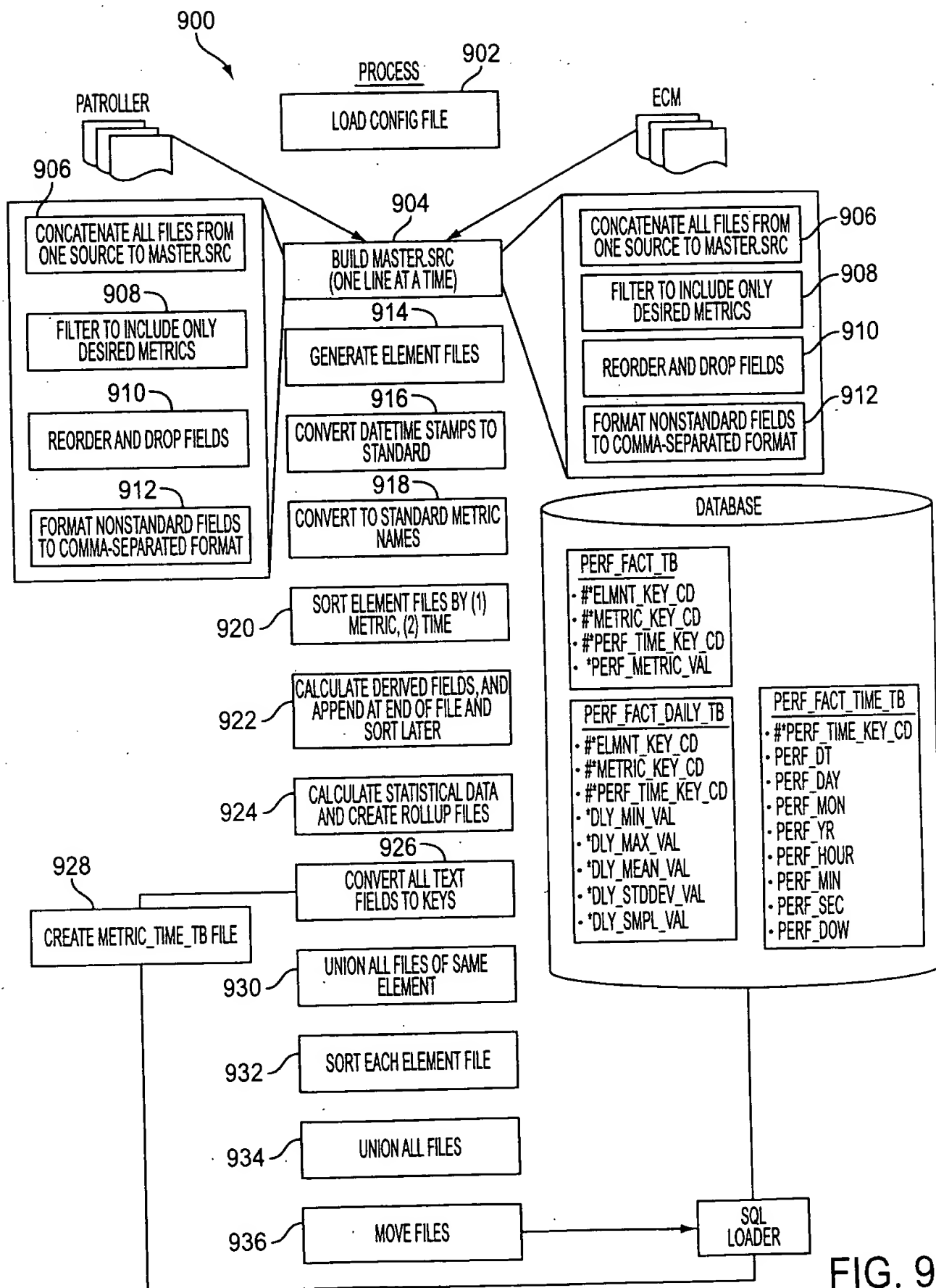


FIG. 9

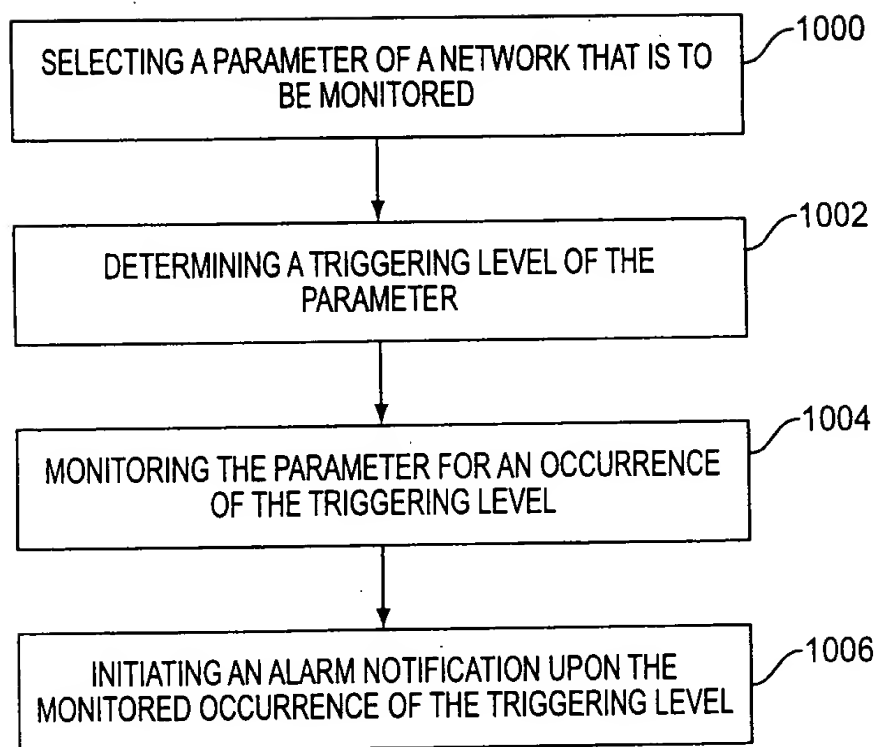


FIG. 10

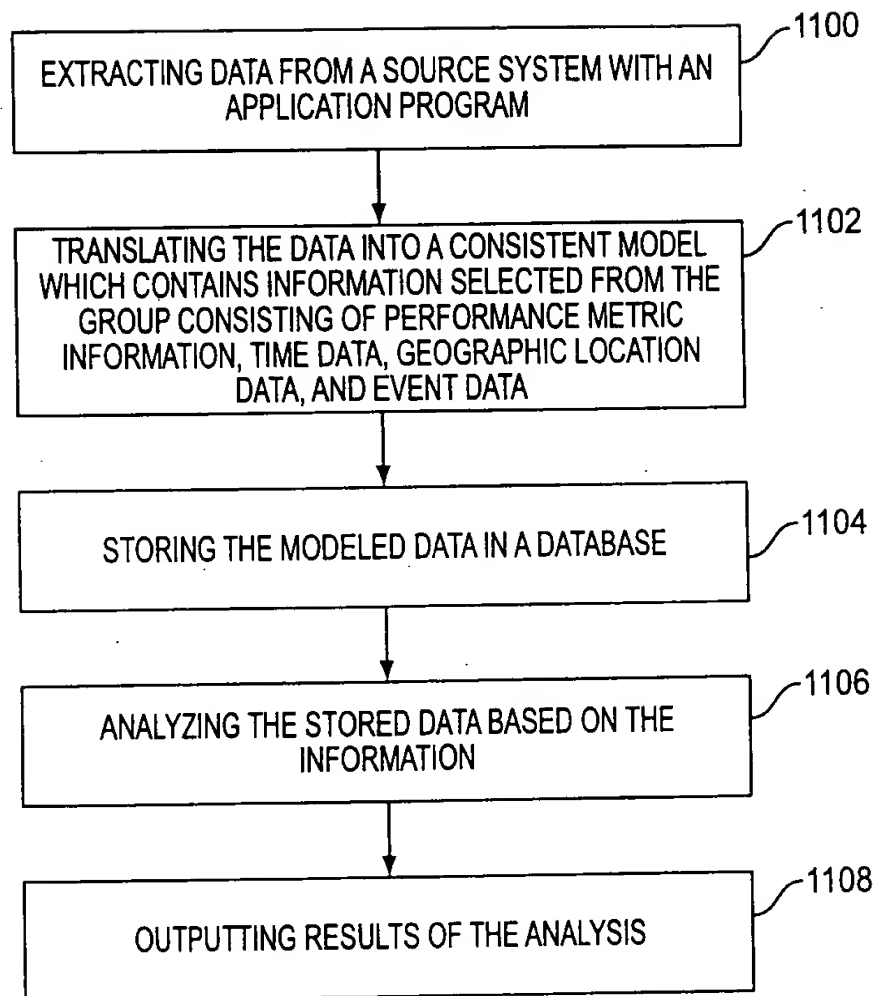
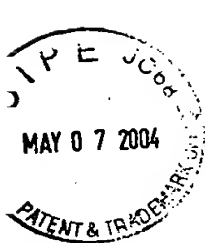


FIG. 11



TABSPACE	DEFAULT STATUS	PHYSICAL REQUIREMENTS	RELATED TABLESPACES/ RELATIONSHIPS	DATAFILE	DATAFILE SIZE (MB)	OPERATING SYSTEM	DATABASE ID	ENTITY LOCATION
IPSA01	On-Line	Data only-No indexes	IPSA01/Index tablespace	/files5/oradata/IPSA01/ipsa01.dat	100	HP-UX 10.2	IPSA01	
IPSA02	On-Line	Index only	IPSA02/data tablespace	/files4/oradata/IPSA02/idx01.dbf	20	HP-UX 10.2	IPSA02	
SYSTEM	On-Line		ALL	/files1/oradata/IPSA01/system01.dbf	60	HP-UX 10.2	IPSA01	
TEMP01	On-Line		ALL	/files3/oradata/IPSA01/tmp01.dbf	20	HP-UX 10.2	IPSA01	
RBS01	On-Line	Contains the 4 rollback segments for the database	ALL	/files2/oradata/IPSA01/rbs01.dbf	30	HP-UX 10.2	IPSA01	

FIG. 12



ELEMENTS	2,000	2,500	5,000	10,000	20,000	50,000
AVERAGE METRICS/ELEMENT	10	10	10	10	10	10
POLL FREQUENCY	100	100	100	100	100	100
DETAIL DATA RETENTION	40	40	40	40	40	40
DAILY ROLLUP DATA RETENTION	400	400	400	400	400	400
DETAIL RECORDS/DAY	2,000,000	2,500,000	5,000,000	10,000,000	20,000,000	50,000,000
TOTAL DETAIL RECORDS	80,000,000	100,000,000	200,000,000	400,000,000	800,000,000	2,000,000,000
DAILY ROLLUP RECORDS/DAY	20,000	25,000	50,000	100,000	200,000	500,000
TOTAL DAILY ROLLUP RETAINED	8,000,000	10,000,000	20,000,000	40,000,000	80,000,000	200,000,000
TOTAL RECORDS	88,000,000	110,000,000	220,000,000	440,000,000	880,000,000	2,200,000,000
TOTAL SPACE/TABLE (BYTES)						
ELMNT LOC_TB	90,000	112,500	225,000	450,000	900,000	2,250,000
NETWORK_ELMNT_TB	204,000	255,000	510,000	1,020,000	2,040,000	5,100,000
PERF_FACT_DAILY_TB	208,000,000	260,000,000	520,000,000	1,040,000,000	2,080,000,000	5,200,000,000
PERF_FACT_TB	3,280,000,000	4,100,000,000	8,200,000,000	16,400,000,000	32,800,000,000	82,000,000,000
PERF_METRIC_TIME_TB	1,285,632,000	1,285,632,000	1,285,632,000	1,285,632,000	1,285,632,000	1,285,632,000
PERF_METRIC_TB	1,638	1,638	1,638	1,638	1,638	1,638
TOTAL SPACE NEEDED (BYTES)	4,773,927,638	5,646,001,138	10,006,368,638	18,727,103,638	36,168,573,638	88,492,983,638
TOTAL SPACE NEEDED (MB)	4,662.04	5,513.67	9,771.84	18,288.19	35,320.87	86,418.93

FIG. 13

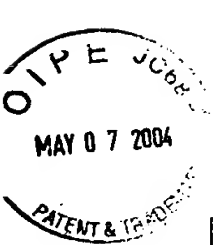


TABLE	COLUMN	DATA TYPE	COULMN SIZE (BYTES)	ROW SIZE (BYTES)	SPACE USED/ ROW (BYTES)
ELMNT_LOC_TB	ELMNT_LOC_CD	Varchar2(5)	6	43	45
	ELMNT_CITY_NM	Varchar2(30)	31		
	ELMNT_STATE_DBRV	Varchar2(2)	3		
EVENT_CD_TB	EVENT_CD			3	11
	EVENT_STRING				
	EVENT_AVAIL_TYPE				
	EVENT_PAIR				
EVENTS_FACT_TB	ELMNT_KEY_CD	Number(10)	7	17	19
	PERF_TIME_KEY_CD	Number(10)	7		
	EVENT_CD				
	EVENT_DURATION				
	EVENT_SEVERITY				
	EVENT_CLASS				
NETWORK_ELMNT_TB	ELMNT_KEY_CD	Number(10)	7	100	102
	ELMNT_NM	Varchar2(20)	21		
	ELMNT_TYPE_CD	Varchar2(2)	3		
	ELMNT_VNDR_NM	Varchar2(30)	31		
	ELMNT_VNDR_MDL	Varchar2(20)	21		
	ELMNT_VAL_DT	Date	8		
	ELMNT_LOC_CD	Varchar2(5)	6		
PERF_FACT_DAILY_TB	ELMNT_KEY_CD	Number(10)	7	24	26
	METRIC_KEY_CD	Number(10)	7		
	PERF_TIME_KEY_CD	Number(10)	7		
	DLY_MIN_AMT				
	DLY_MAX_AMT				
	DLY_MEAN_AMT				
	DLY_MEDIAN_AMT				
	DLY_STDDEV_AMT				
PERF_FACT_TB	ELMNT_KEY_CD	Number(10)	7	39	41
	PERF_TIME_KEY_CD	Number(10)	7		
	METRIC_KEY_CD	Number(10)	7		
	PERF_METRIC_VAL	Number(25,5)	15		
PERF_METRIC_TB	METRIC_KEY_CD	Number(10)	7	124	126
	METRIC_NM	Varchar2(30)	31		
	METRIC_SRC	Varchar2(20)	21		
	METRIC_INS	Varchar2(30)	31		
	METRIC_SUB_INS	Varchar2(30)	31		
PERF_METRIC_TIME_TB	PERF_TIME_KEY_CD	Number(10)	7	370	372
	PERF_DT	Date	8		
	PERF_DAY	Number(2)	2		
	PERF_MON	Number(2)	2		
	PERF_YR	Number(4)	3		
	PERF_HOUR	Number(2)	2		
	PERF_MIN	Number(2)	2		
	PERF_SEC	Number(2)	2		
	PERF_DOW	Varchar2(9)	10		

FIG. 14

	TIME TO LOAD (DIRECT)	TIME TO LOAD (CONVENTIONAL)	NUMBER OF ROWS LOADED	AMOUNT OF DATA (MB)	COMMENTS
EMPTY TABLE	00:04:32	00:30:12	1,048,576	35	
1 MIL ROWS IN TABLE	00:06:29	00:32:57	1,048,576	35	INDEX WAS 10 MB LARGER FOR CONVENTIONAL LOAD. THIS SUGGEST SOME DEGREE OF FRAGMENTATION OCCURRED DURING LOAD WHICH WOULD REQUIRE WEEKLY INDEX MAINTENANCE
EMPTY TABLE	00:14:49	01:31:47	3,145,728	106	
2 MIL ROWS IN TABLE	00:08:49	00:35:49	1,048,576	35	INDEX WAS 30 MB LARGER FOR CONVENTIONAL LOAD. THIS SUGGEST SOME DEGREE OF FRAGMENTATION OCCURRED DURING LOAD WHICH WOULD REQUIRE WEEKLY INDEX MAINTENANCE
EMPTY TABLE	00:30:10	03:05:24	6,291,456	212	
3 MIL ROWS IN TABLE	00:22:52	01:33:15	3,145,728	106	HAD TO INCREASE THE SIZE OF THE INDEX TABLESPACE IN ORDER FOR THE NEW INDEX AND THE OLD INDEX TO MERGE AT THE END OF DIRECT LOAD.

FIG. 15



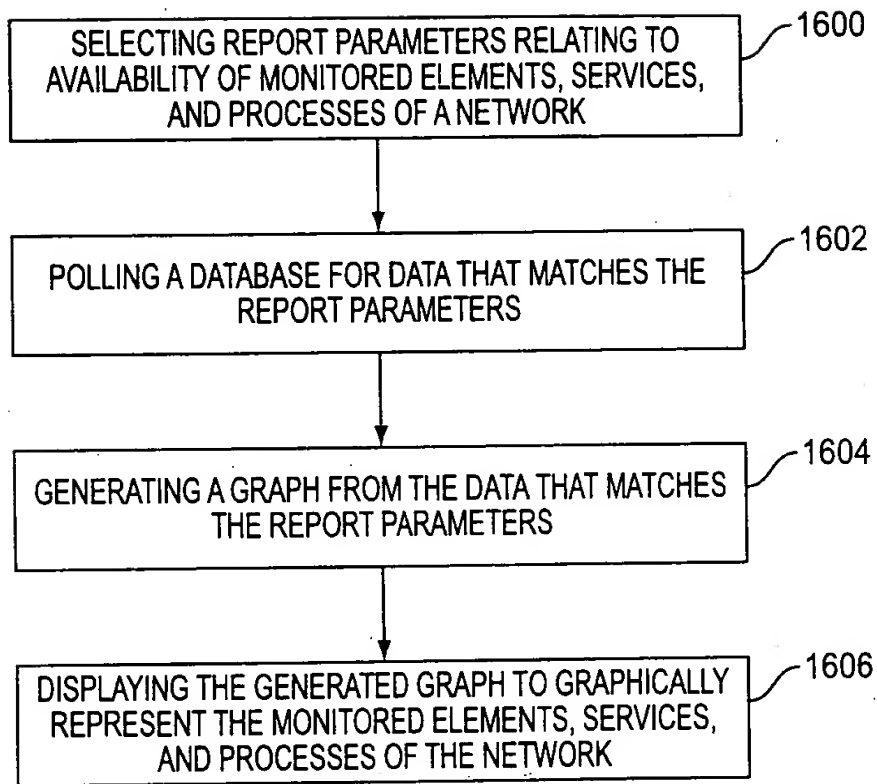


FIG. 16

1700

Select Metric Class - Netscape

File Edit View Go Communicator Help

Location: <http://nsmmp33/cgi-bin/adhoc.pl>

Adhoc Reporting

Please choose a Metric Class

Network Element Performance Next 1702

- Daily Rollup Statistics
- Element Availability
- Events
- Internet Application Performance
- NT Server Performance
- Network Element Performance
- Process Availability
- Router port/WAN Performance
- Service A. availability
- Unix Server Performance

FIG. 17A

Performance Charting - Netscape

File Edit View Go Communicator Help

Location: <http://nsmmp33/cgi-bin/adhoc.pl>

Network Element Performance

Please choose a report type

Network Element Performance

Trend Boxplot Next 1710

- Comparison Boxplot
- Detail XY Line Graph
- Trend Boxplot

FIG. 17B

Trend Boxplot - Netscape

File Edit View Go Communicator Help

Location: <http://nsmmp33/cgi-bin/adhoc.pl>

Trend Box Plot: Network Element Performance 1806

1800

Title: Network Element Performance Report

Element(s): nsmmr03 nsmmr04 Location(s): Minneapolis

Available Elements: nsmmr04 add Available Cities: Minneapolis add

Metric(s): CPU Busy (%) CPU Processor Time (%) CPU Utilization (%) 1802

Element Type: Router 1804

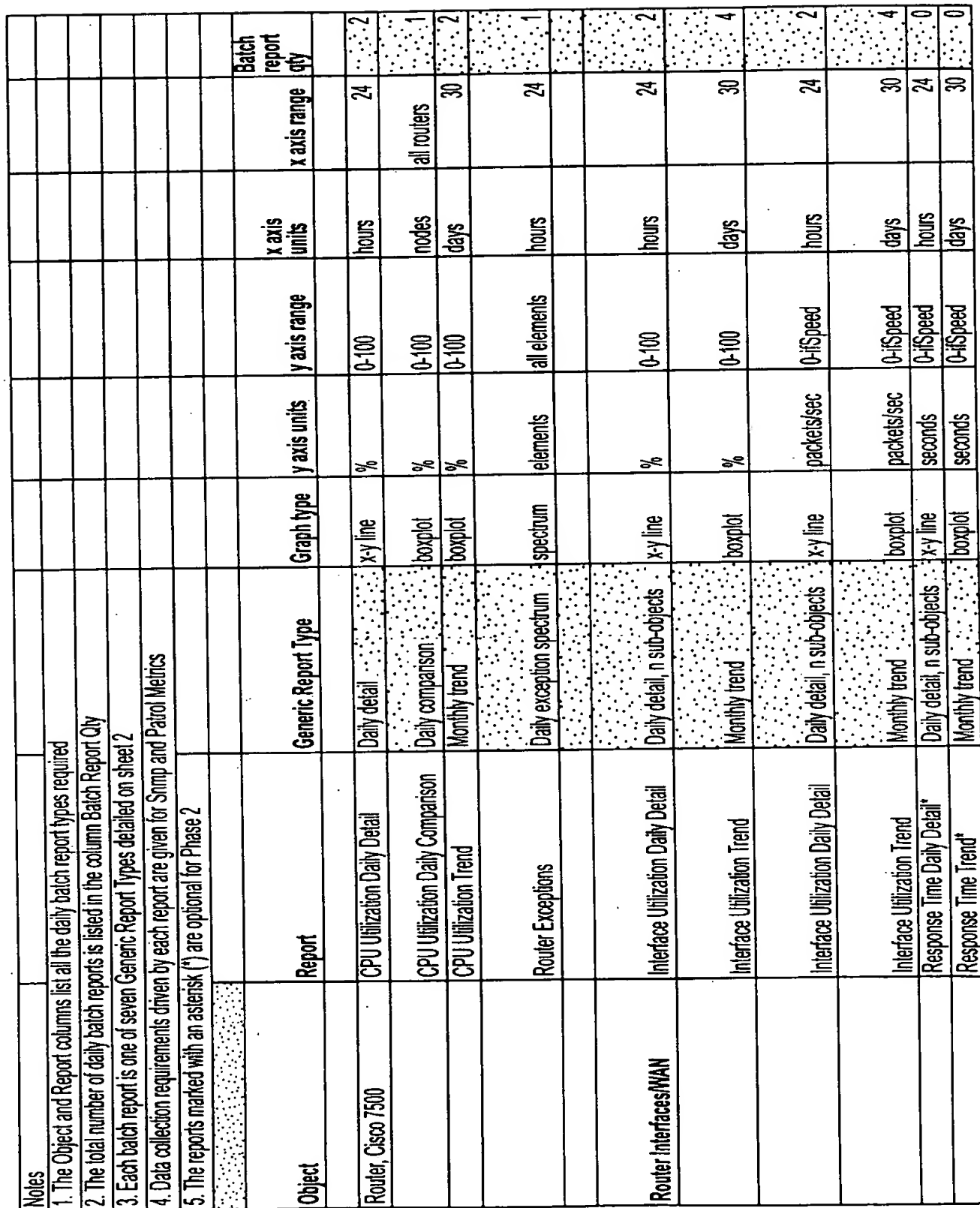
hold down the control key to choose multiple options

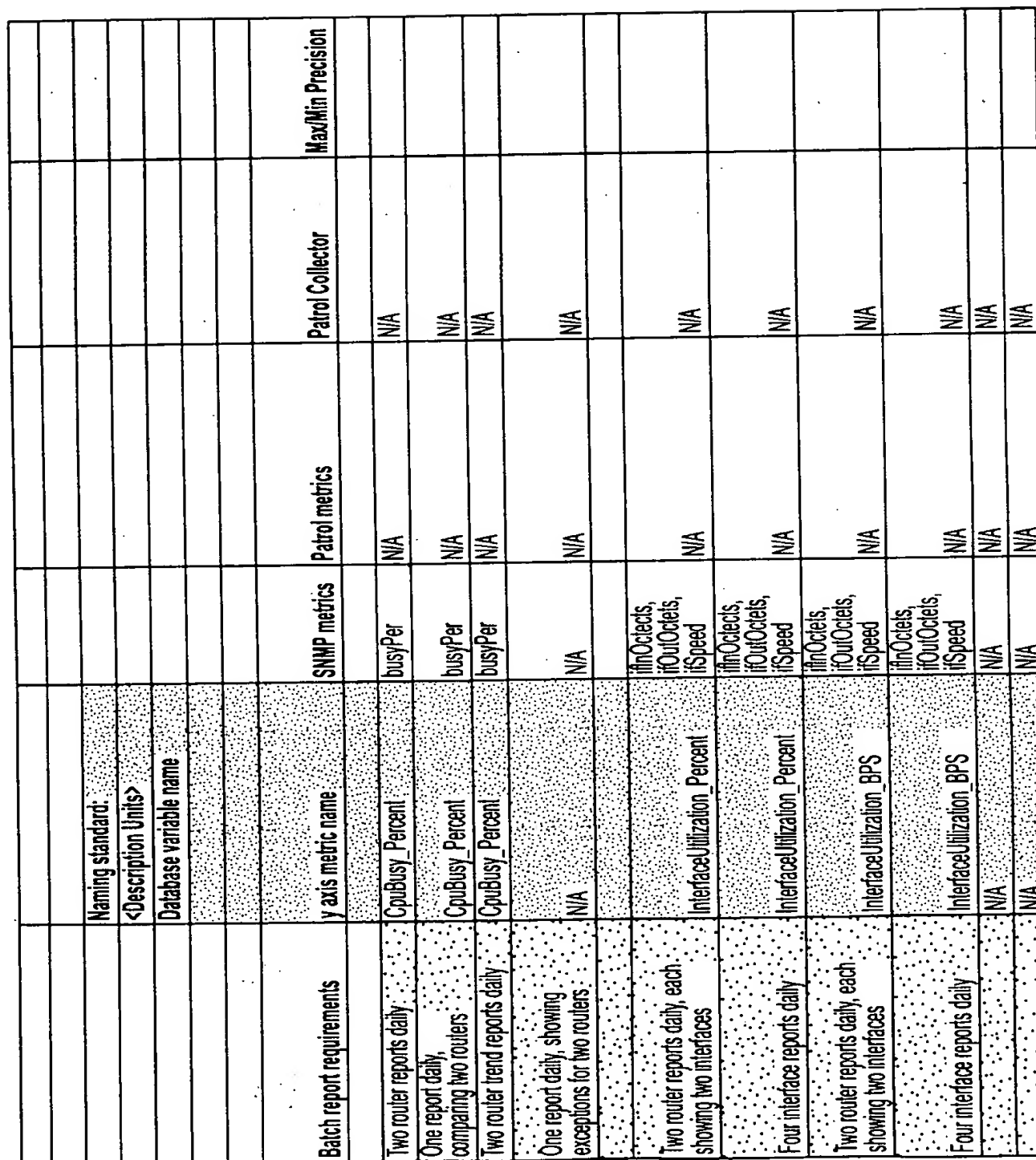
Start Date (yyyy mm dd): 1998 09 17

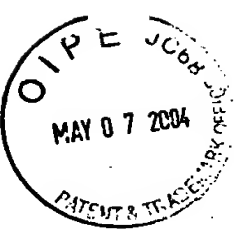
Report Range (days): 01

Submit Reset

FIG. 18







Unix servers	CPU Utilization Daily Detail	Daily detail	x-y line	%	0-100	hours	24	1
	CPU Utilization Trend	Monthly trend	boxplot	%	0-100	days	30	1
	Memory Utilization Daily Detail	Daily detail	x-y line	bytes	0-100	hours	24	1
	Memory Utilization Trend	Monthly trend	boxplot	bytes	0-100	days	30	1
	Network I/O Daily Detail	Daily detail	x-y line	%	0-100	hours	24	1
	Network I/O Trend	Monthly trend	boxplot	%	0-100	days	30	1
	Disk Percent Busy Daily Detail	Daily detail	x-y line	%	0-100	hours	24	1
	Disk Percent Busy Trend	Monthly trend	boxplot	%	0-100	days	30	1
NT servers	Unix Exceptions	Daily exception spectrum	spectrum	elements	all elements	hours	24	1
	CPU Utilization Daily Detail	Daily detail	x-y line	%	0-100	hours	24	1
	CPU Utilization Trend	Monthly trend	boxplot	%	0-100	days	30	1
	Memory Utilization Daily Detail	Daily detail	x-y line	% or bytes	0-100	hours	24	1
	Memory Utilization Trend	Monthly trend	boxplot	% or bytes	0-100	days	30	1
	Network I/O Daily Detail	Daily detail	x-y line	packets/sec	0-100	hours	24	1
	Network I/O Trend	Monthly trend	boxplot	packets/sec	0-100	days	30	1
	Disk Percent Busy Daily Detail	Daily detail	x-y line	%	0-100	hours	24	1
Network Elements (all hardware)	Disk Percent Busy Trend	Monthly trend	boxplot	%	0-100	days	30	1
	NT Exceptions	Daily exception spectrum	spectrum	elements	all elements	hours	24	1
	Network Availability Bar Chart	Daily availability bar chart	bar	%	0-100	elements	all elements	1
	Network Availability Spectrum*	Daily availability spectrum	spectrum	elements	all elements	hours	24	0
	Process Availability Bar Chart	Daily availability bar chart	bar	%	0-100	processes	all processes	1

FIG. 19C



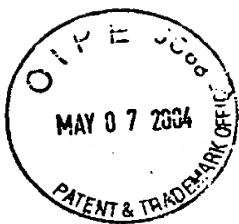
One server report daily	CpuUtilization_Percent	N/A	CPUUtil	VMColl	0/100 - #.###
One server report daily	CpuUtilization_Percent	N/A	CPUUtil	VMColl	0/100 - #.###
One server report daily	MemoryFree_Pages	N/A	MEMFreeMem	VMColl	0/+ - #.###
One server report daily	MemoryFree_Pages	N/A	MEMFreeMem	VMColl	0/+ - #.###
One server report daily	NetworkTraffic_PPS	N/A	NETPacketsIn, NETPacketsOut	NETColl	0/+ - #.###
One server report daily	NetworkTraffic_PPS	N/A	NETPacketsIn, NETPacketsOut	NETColl	0/+ - #.###
One server report daily, showing two disks	DiskBusy_Percent	N/A	DSKPercentBusy		0/100 - #.###
One report daily, showing exceptions from two servers	DiskBusy_Percent	N/A	DSKPercentBusy		0/100 - #.###
One report daily, showing exceptions from two servers	N/A	N/A	N/A	N/A	
One server report daily	CpuProcessorTime_Percent		CPUProcProcessorTimePercent	CPUProcessorColl	0/100 - #.###
One server report daily	CpuProcessorTime_Percent		CPUProcProcessorTimePercent	CPUProcessorColl	0/100 - #.###
One server report daily	MemoryFree_Mbytes		MEMMemAvailableBytes	MEMMemoryColl	0/+ - #.###
One server report daily	MemoryFree_Mbytes		MEMMemAvailableBytes	MEMMemoryColl	0/+ - #.###
One server report daily	NetworkTraffic_PPS		NETInPcktsPerSec	NETNetworkInterfaceColl	0/+ - #.###
One server report daily	NetworkTraffic_PPS		NETInPcktsPerSec	NETNetworkInterfaceColl	0/+ - #.###
One server report daily, showing two disks	DiskTime_Percent		PDpdDiskTimePercent	PDPhysicalDiskColl	0/100 - #.###
One server report daily, showing two disks	DiskTime_Percent		PDpdDiskTimePercent	PDPhysicalDiskColl	0/100 - #.###
One report daily, showing exceptions from two servers	N/A	N/A	N/A	N/A	N/A
One report showing all elements	N/A	N/A	N/A	N/A	N/A
One report showing all elements	N/A	N/A	N/A	N/A	N/A
One report showing 5 ISP apps	N/A	N/A	N/A	N/A	N/A

FIG. 19D



	Process Availability Spectrum*	Daily availability spectrum	spectrum	processes	all processes	hours	24	0
	Service Availability Bar Chart	Daily availability bar chart	bar	%	0-100	services	all services	1
	Service Availability Spectrum*	Daily availability spectrum	spectrum	services	all services	hours	24	0
All objects (fault mgmt)	Daily Exception Report	Textual list of all events	text	N/A	N/A	N/A	N/A	1
	FTP Response Time Daily Detail*	Daily detail	x-y line	seconds	0-max value			0
	FTP Response Time Trend*	Monthly trend	boxplot	seconds	0-max value			0
	SMTP Response Time Daily Detail*	Daily detail	x-y line	seconds	0-max value			0
	SMTP Response Time Trend*	Monthly trend	boxplot	seconds	0-max value			0
	NNTP Response Time Daily Detail*	Daily detail	x-y line	seconds	0-max value			0
	NNTP Response Time Trend*	Monthly trend	boxplot	seconds	0-max value			0
	HTTP Response Time Daily Detail*	Daily detail	x-y line	seconds	0-max value			0
	HTTP Response Time Trend*	Monthly trend	boxplot	seconds	0-max value			0
							Total	40

FIG. 19E



One report showing 5 ISP apps	N/A	N/A	N/A	N/A	N/A
One report showing 5 ISP apps	N/A	N/A	N/A	N/A	N/A
One report showing 5 ISP apps	N/A	N/A	N/A	N/A	N/A
One report daily showing all events	N/A	N/A	N/A	N/A	N/A
One report daily	FtpResponseTime_Seconds	N/A	ftpResponseTime	ftpMonitor	
One report daily	FtpResponseTime_Seconds	N/A	ftpResponseTime	ftpMonitor	
One report daily	SmbResponseTime_Seconds	N/A	smbResponseTime	smbMonitor	
One report daily	SmbResponseTime_Seconds	N/A	smbResponseTime	smbMonitor	
One report daily	NntpResponseTime_Seconds	N/A	nntpResponseTime	nntpMonitor	
One report daily	NntpResponseTime_Seconds	N/A	nntpResponseTime	nntpMonitor	
One report daily	HttpResponseTime_Seconds	N/A	httpResponseTime	httpMonitor	
One report daily	HttpResponseTime_Seconds	N/A	httpResponseTime	httpMonitor	

FIG. 19F



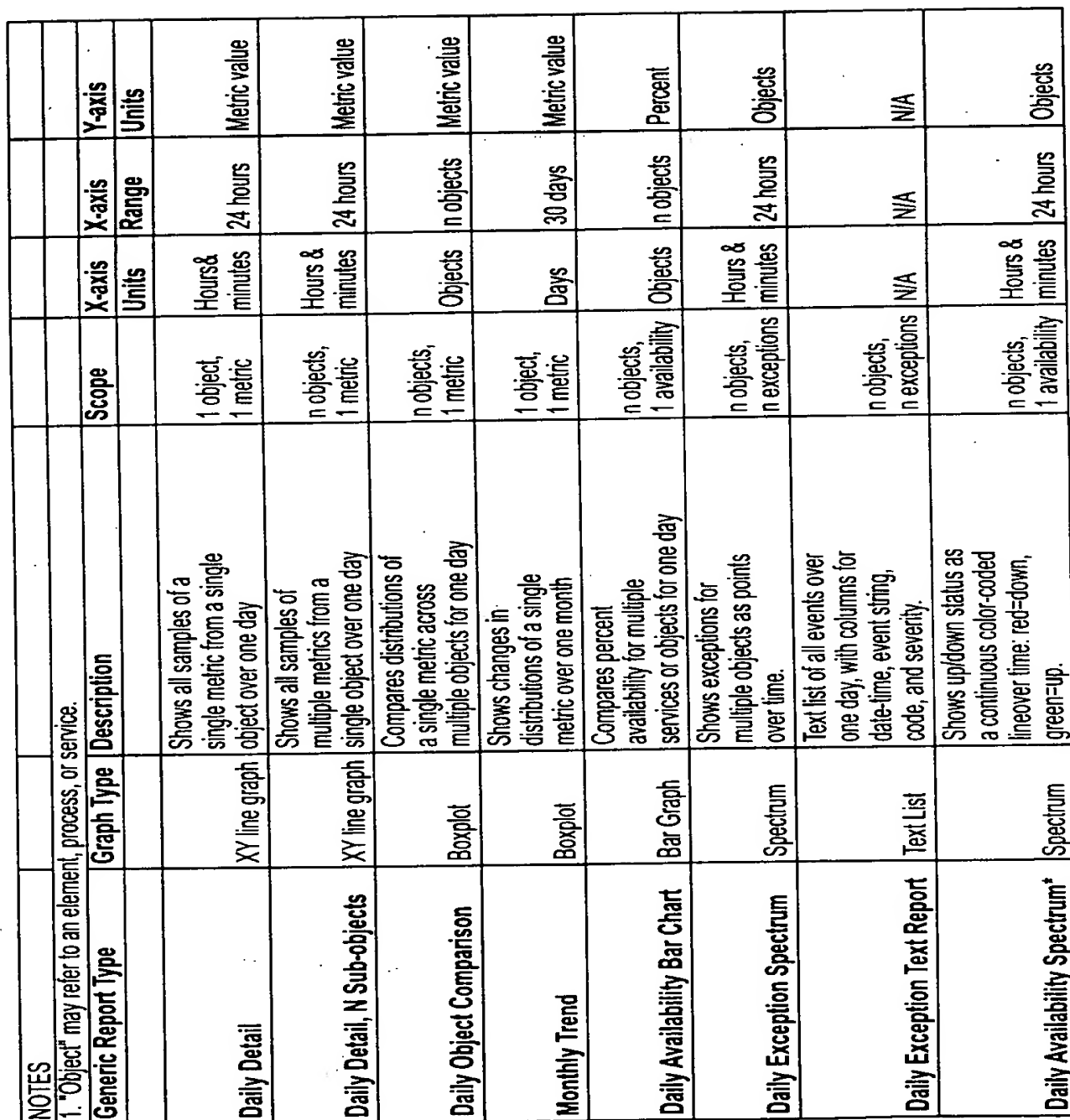


FIG. 20

1st menu choice	2nd menu choice	3rd menu choice	4th menu choice	5th menu choice	6th menu choice	7th menu choice	Metrics(s)
Select Metric Class	Select Report Type	Select Element(s)	Select Location(s)	Select start date	# of days		
default	N/A	all	all	yesterday	1		
Element Availability	Percent Availability Bar Graph	<element name>	<element location>	<start date>	<days>		N/A
Service Availability	Percent Availability Bar Graph	<element name>	<element location>	<start date>	<days>	<service>	N/A
Process Availability	Percent Availability Bar Graph	<element name>	<element location>	<start date>	<days>	<process>	N/A
Events	Exception Spectrum	<element name>	<element location>	<start date>	<days>		N/A
Network Element Performance	Detail XY Line Graph	<element name>	<element location>	<start date>	<days>		Cpu Utilization (bus/per)
	Trend Boxplot	<element name>	<element location>	<start date>	<days>		Cpu Utilization (bus/per)
	Comparison Boxplot	<element name>	<element location>	<start date>	<days>		Cpu Utilization (bus/per)
Router port/WAN Performance	Detail XY Line Graph	<element name>	<element location>	<start date>	<days>	<instance>	Interface Utilization (fin/OutOctets)
	Trend Boxplot	<element name>	<element location>	<start date>	<days>	<instance>	Interface Utilization (fin/OutOctets)
	Comparison Boxplot	<element name>	<element location>	<start date>	<days>	<instance>	Interface Utilization (fin/OutOctets)
Unix Server Performance	Detail XY Line Graph	<element name>	<element location>	<start date>	<days>	<instance>	Cpu Utilization, Memory Utilization, Network Utilization, Disk Percent Busy
	Trend Boxplot	<element name>	<element location>	<start date>	<days>	<instance>	Cpu Utilization, Memory Utilization, Network Utilization, Disk Percent Busy
	Comparison Boxplot	<element name>	<element location>	<start date>	<days>	<instance>	Cpu Utilization, Memory Utilization, Network Utilization, Disk Percent Busy
NT Server Performance	Detail XY Line Graph	<element name>	<element location>	<start date>	<days>	<instance>	Cpu Utilization, Memory Utilization, Network Utilization, Disk Percent Busy
	Trend Boxplot	<element name>	<element location>	<start date>	<days>	<instance>	Cpu Utilization, Memory Utilization, Network Utilization, Disk Percent Busy
	Comparison Boxplot	<element name>	<element location>	<start date>	<days>	<instance>	Cpu Utilization, Memory Utilization, Network Utilization, Disk Percent Busy
Internet Application Performance	Detail XY Line Graph	<element name>	<element location>	<start date>	<days>		Response Time
	Trend Boxplot	<element name>	<element location>	<start date>	<days>		Response Time
	Comparison Boxplot	<element name>	<element location>	<start date>	<days>		Response Time
Daily Rollup Statistics	Detail XY Line Graph	<element name>	<element location>	<start date>	<days>	<metric name>	<rollup statistic> (min, max, mean, std dev, sample size)

FIG. 21



SNMP/PIATROL METRICS	DESCRIPTION	PLATFORMS	UNITS
busyPer	Provides the percent of CPU usage over the first 5 second period in the scheduler.	Router	percentage
ifInOctets	The total number of octets received on the interface, including framing characters.	Router Interface	octets
ifOutOctets	The total number of octets transmitted out of the interface, including framing characters.	Router Interface	octets
ifSpeed	An estimate of the interface's current bandwidth in bits per second. For interfaces which do not vary in bandwidth or for those where no accurate estimation can be made, this object should contain the nominal bandwidth.	Router Interface	bits per second
CPUcpuUtil	Displays the percentage of CPU utilization.	UNIX	percentage
MEMFreeMem	Displays the number of pages of memory available.	UNIX	pages
NETPacketsIn	Displays the total number of incoming packets within a sample interval.	UNIX	packets
NETPacketsOut	Displays the total number of outgoing packets within a sample interval.	UNIX	packets
DSKPercentBusy	Displays the percentage of time that the device is busy servicing a transfer request.	UNIX	percentage
CPUProcProcessorTimePercent	Displays a percentage of the elapsed time that a processor is busy executing a non-idle thread.	NT	percentage
MEMMemAvailableBytes	Displays the size of the virtual memory currently on the zeroed, free, and standby memory lists.	NT	megabytes
NETInPktsPerSec	Displays the rate that the packets are sent and received on the network.	NT	packets per second
PDopDiskTimePercent	Displays the percentage of elapsed time that the disk spends servicing read or write requests.	NT	percentage

FIG. 22

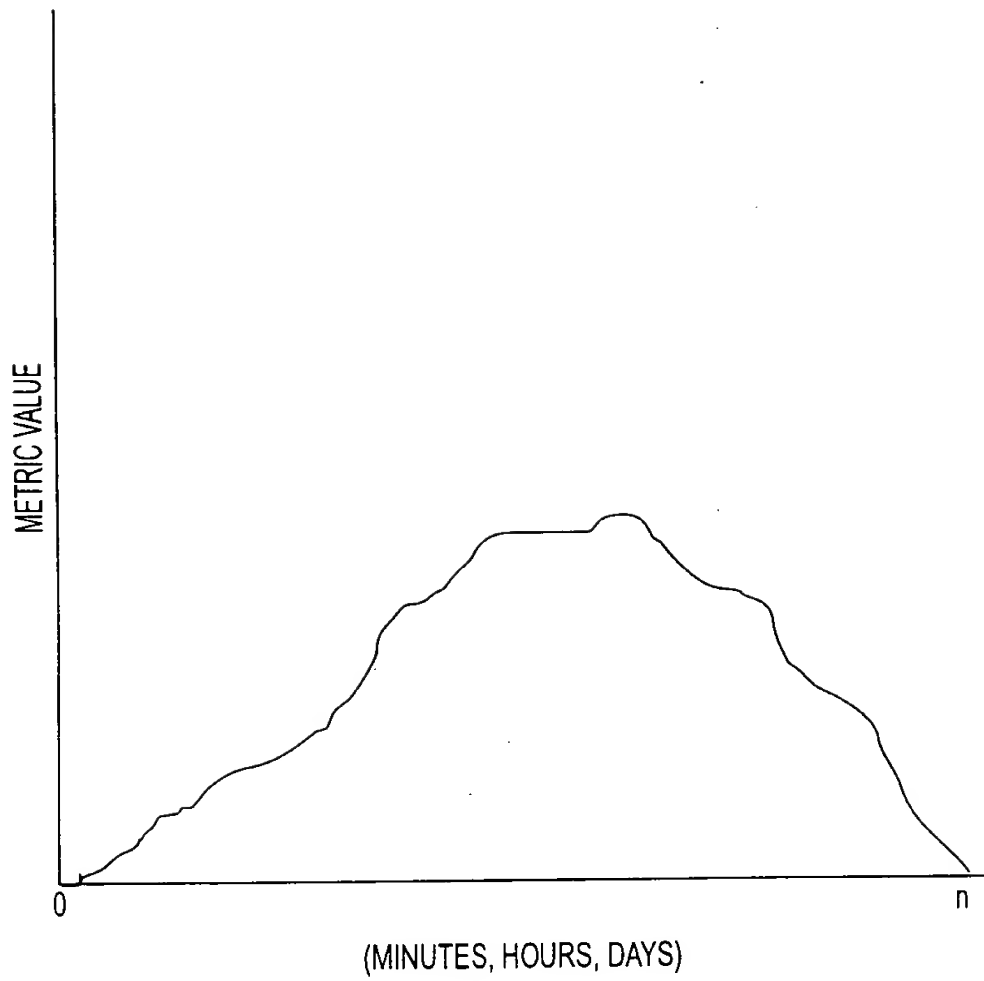


FIG. 23

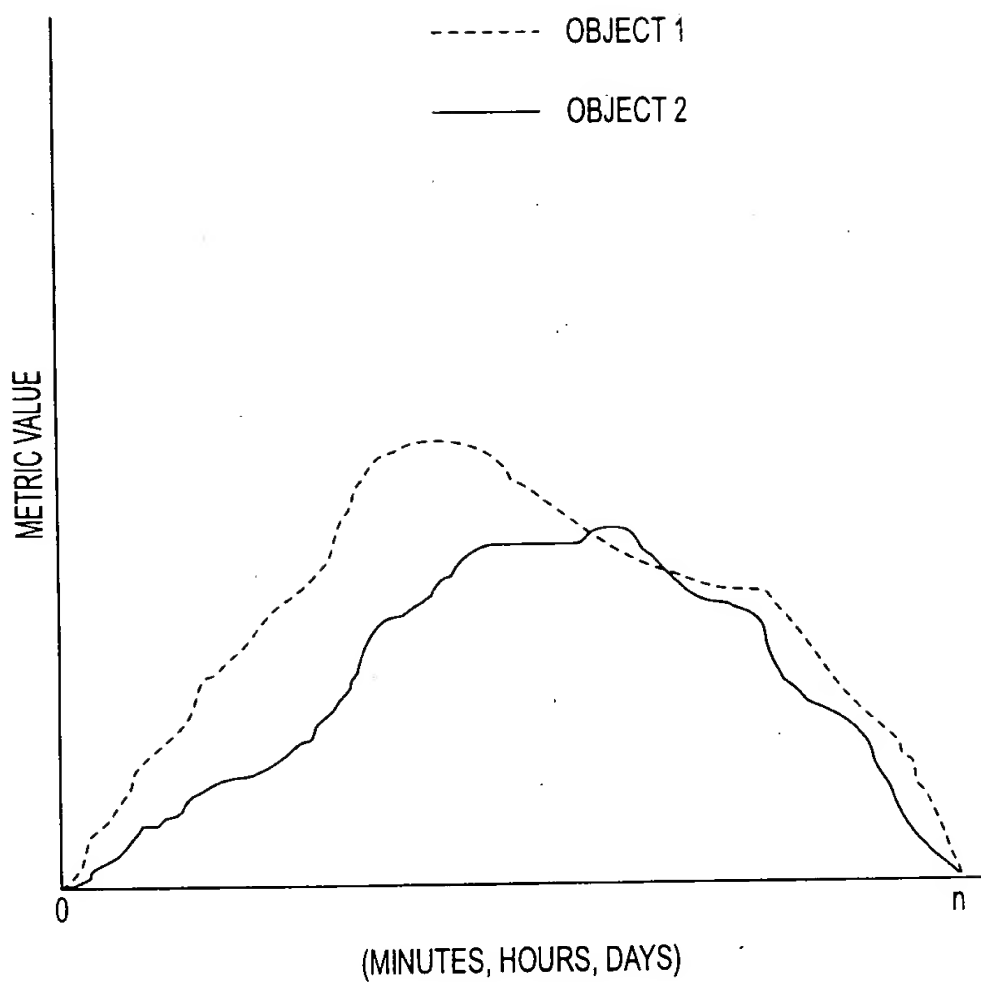


FIG. 24

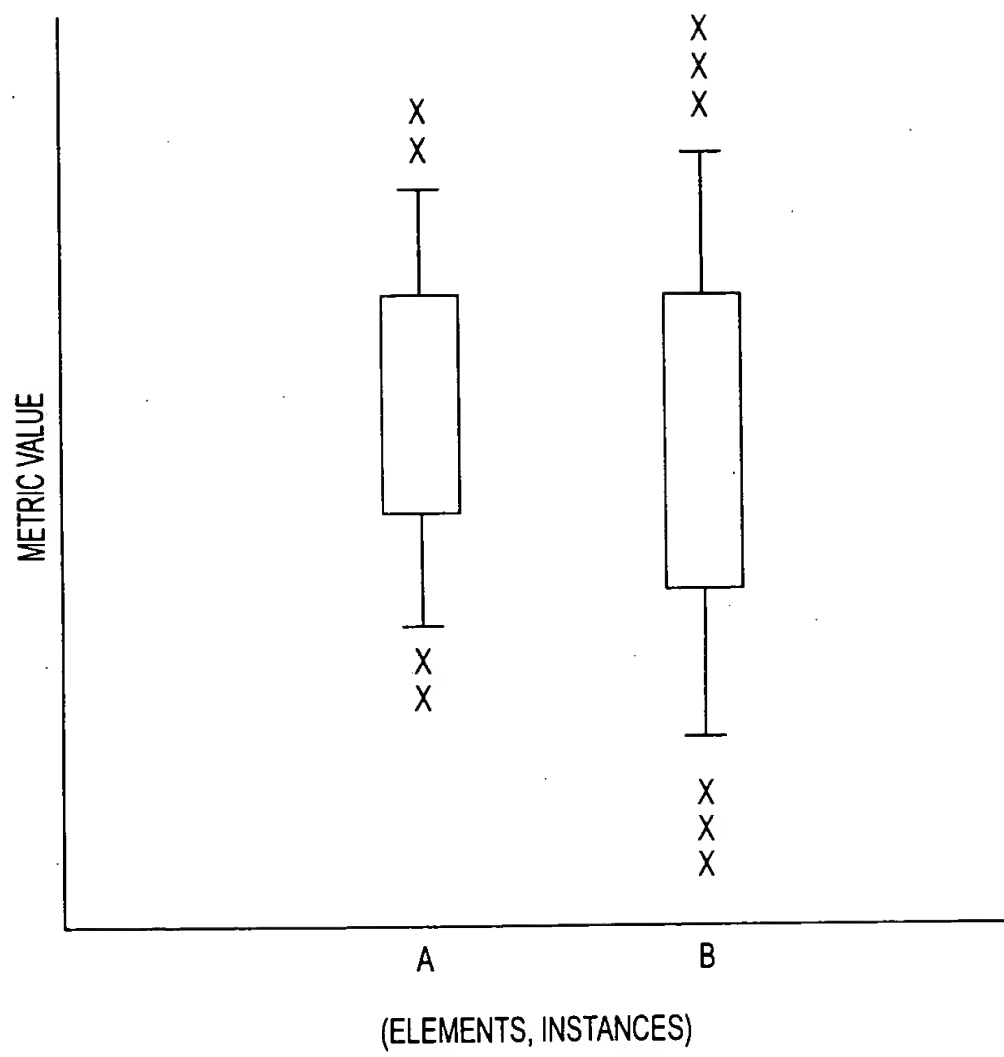


FIG. 25

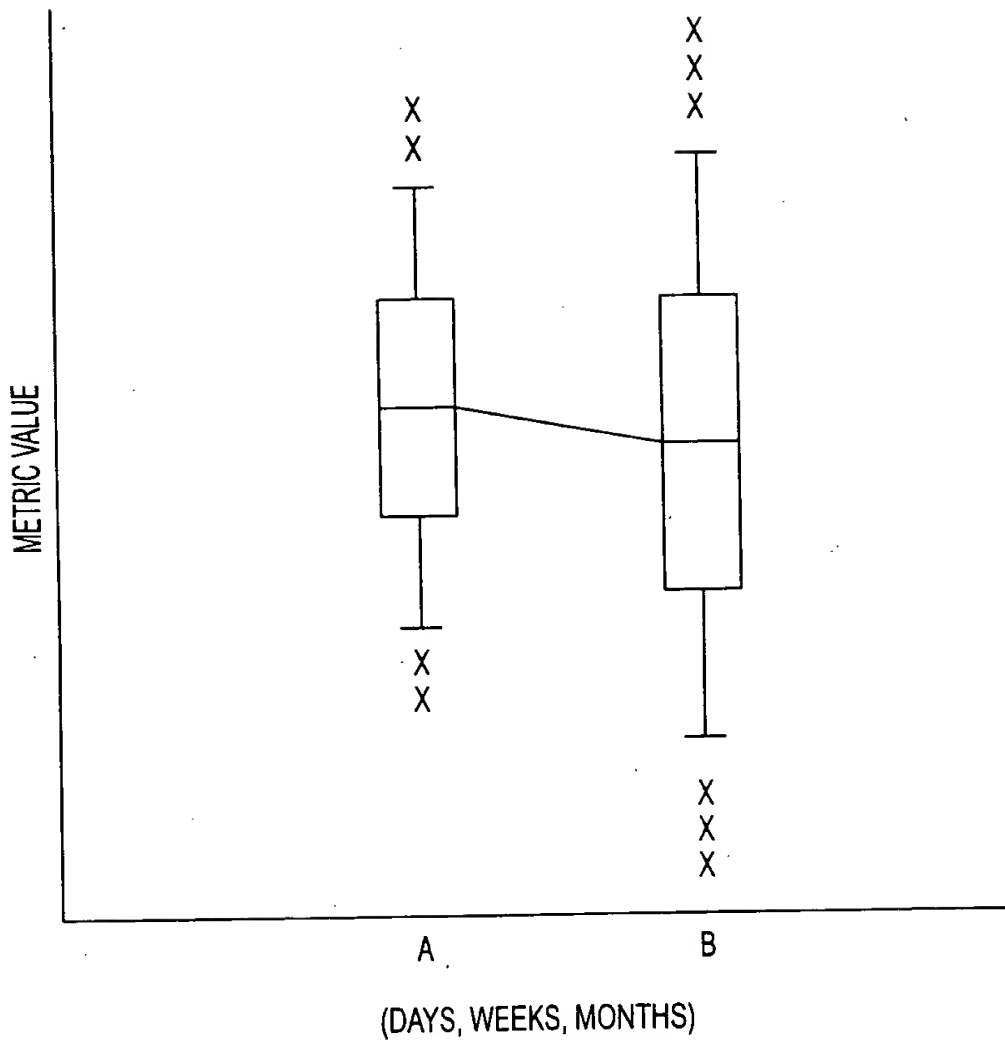


FIG. 26

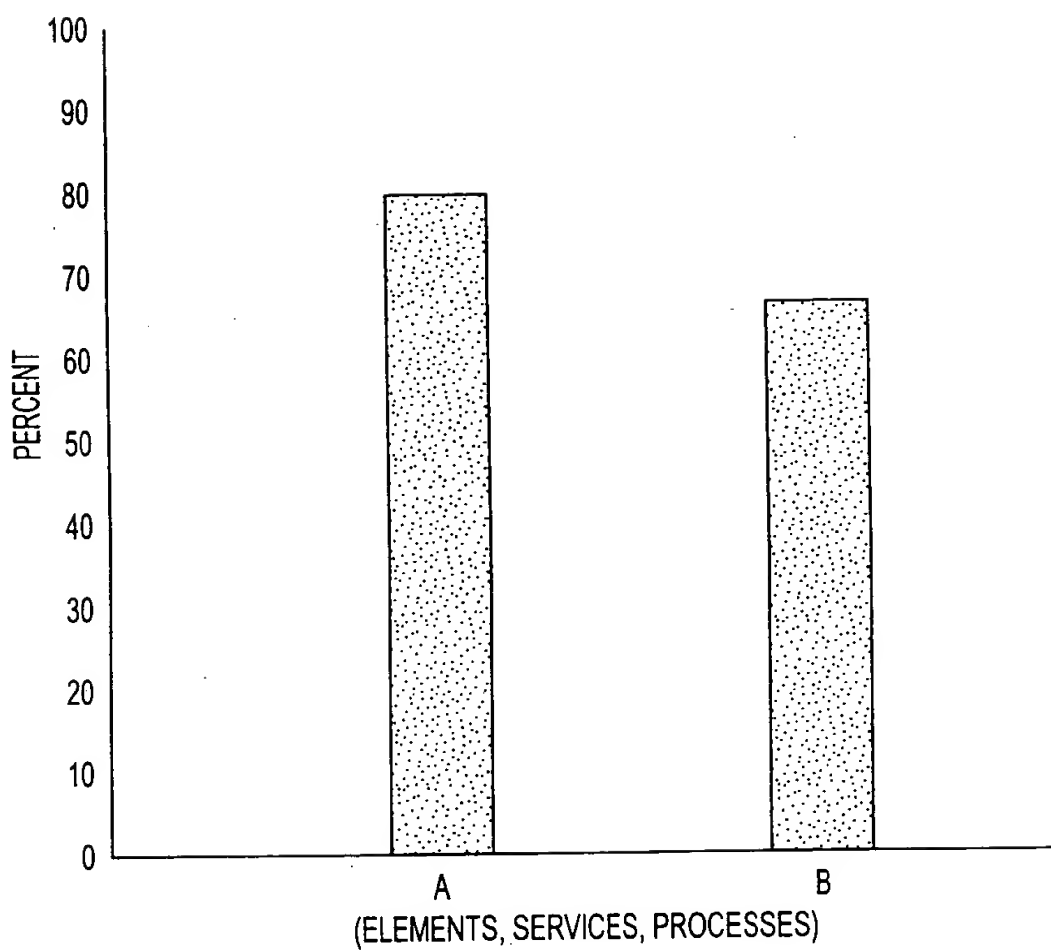


FIG. 27



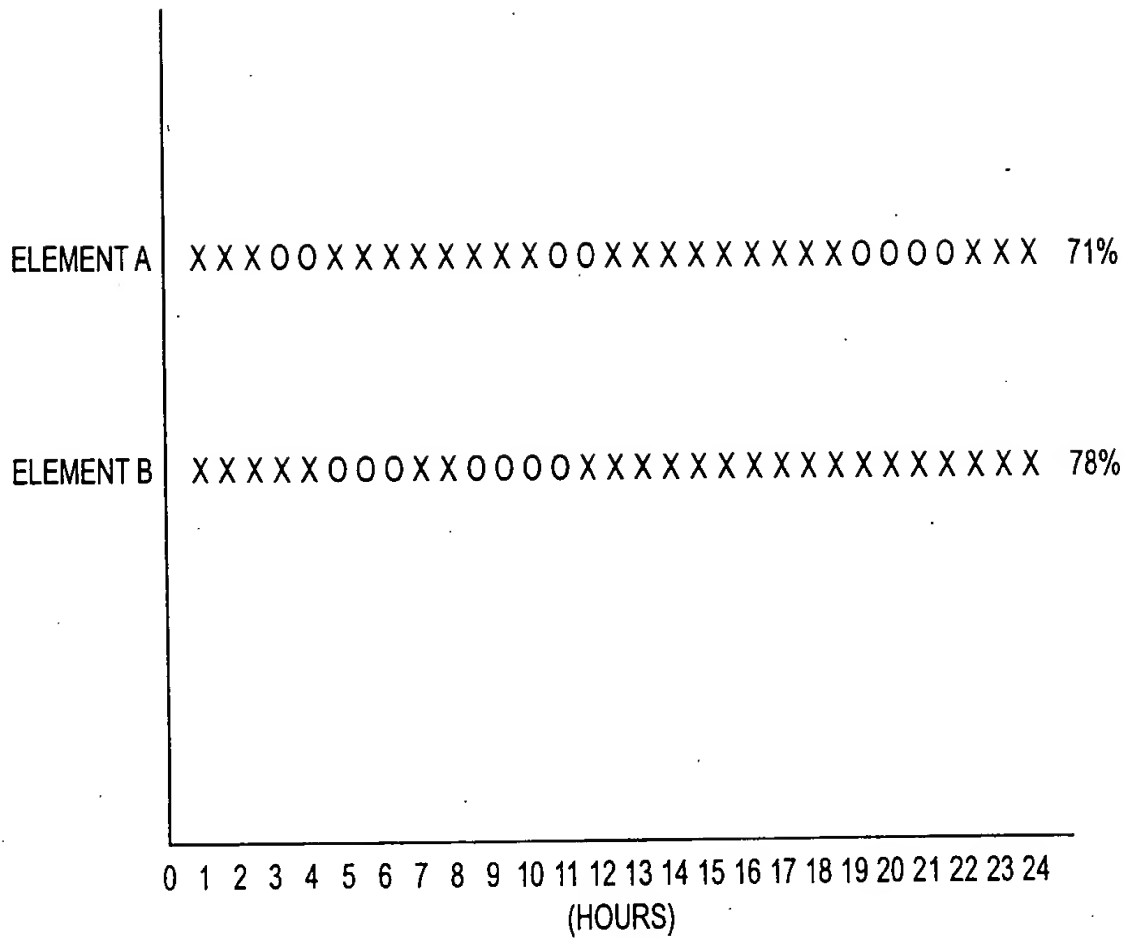


FIG. 28

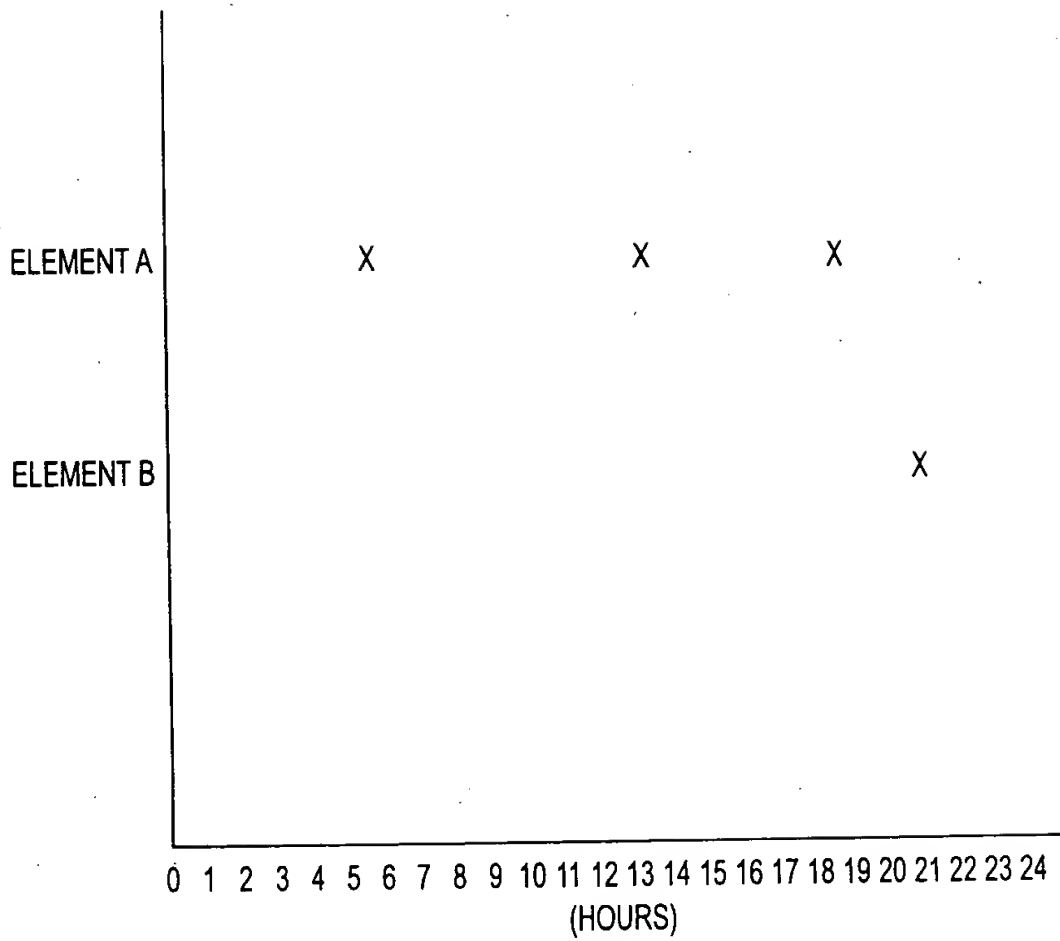


FIG. 29



Date-Time	Element	Event string	Duration	Severity
01/12/1998 06:34:12 Critical	nsmmws16	CPU Utilization over 80%		
01/12/1998 08:01:23	nsmmws09	Host down	3:24:43	Critical
01/12/1998 16:54:52	twmmnt02	FTP service down	0:19:42	Critical

FIG. 30

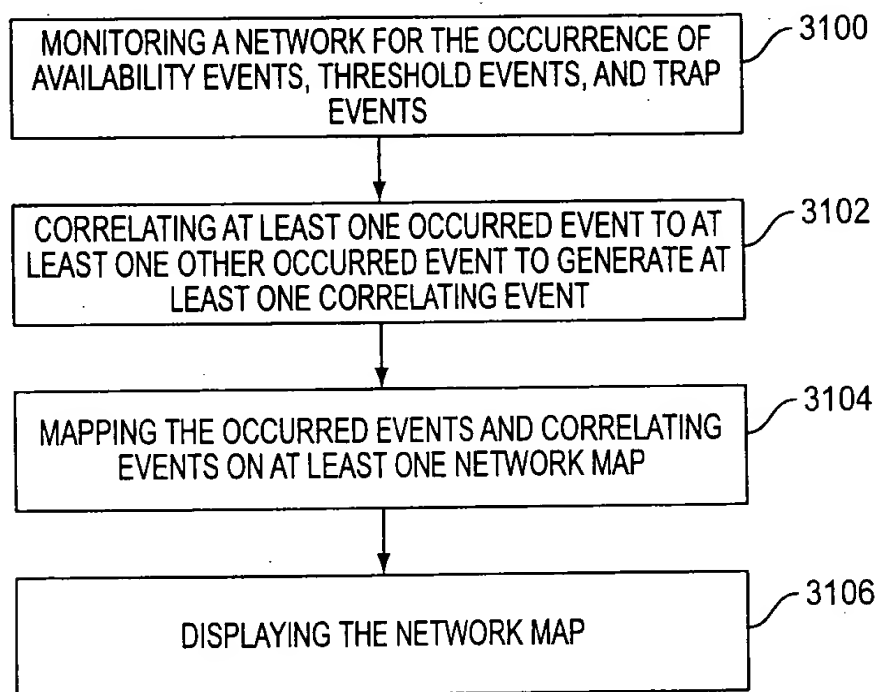


FIG. 31

